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United States Department of Agriculture, DIVISION OF STATISTICS.

THE WORLD'S GRAIN CROPS IN 1899.

ESTIMATES OF THE WORLD'S WHEAT SUPPLY.

Three estimates of the world's wheat crop of 1899 have now appeared. One is that of the Hungarian ministry of agriculture, another that of the well-known London grain-trade journal, *Beerbohm's Evening Corn Trade List*, and the third that of the *Bulletin des Halles*, published in Paris. With the first are presented estimates of the consumption, stocks on hand from last year, and imports and exports of the various countries. The Hungarian estimate and that of the *Bulletin des Halles* were expressed in hectoliters, and those of Beerbohm in quarters of 480 pounds. The two former are reduced to Winchester bushels and the latter to bushels of 60 pounds. The quantities are, therefore, not strictly comparable, but they are as nearly so as they could be made without a knowledge of the average weight of the hectoliter (or the weight assumed therefor) for each country. The following table comprises all three of these estimates along with the figures of the Department of Agriculture for 1898, quantities being expressed in each case to the nearest million bushels. It also embraces in the same form the estimates of the Hungarian ministry of agriculture on stocks, consumption, and imports or exports.

It will be noticed that Switzerland, Persia, and Cape Colony, credited by the Department of Agriculture and the *Bulletin des Halles* with 27 and by Beerbohm with 28 million bushels, are omitted in the estimate of the Hungarian ministry of agriculture; that Uruguay and Mexico, credited by the Department with 21 and by Beerbohm with 24 million bushels, are omitted from both of the other estimates, and that Japan and Cyprus appear only in the estimate of the Department of Agriculture, where they are credited with 21 million bushels. The grand total of the Department of Agriculture for 1898 thus includes 69 million bushels for countries not included in the Hungarian estimate for 1899, while the estimates of Beerbohm and the *Bulletin des Halles* for the latter year include, respectively, 52 and 27 million bushels for countries whose crops are not included in the Hungarian total. Hence, if we subtract from the Department total 69, from Beerbohm's total 52, and from the total of the *Bulletin des Halles* 27 million bushels we shall have figures which represent the same countries in all four estimates, though there may still be some difference in respect to the degree of completeness with which certain countries are covered.

Estimates of the world's wheat supply, by countries.

[In millions of bushels.]

Countries.	Production.				Estimate of Hungarian ministry of agriculture.		
	1898.	1899.			Stocks from previous crop year.	Crop year 1899-1900.	
	Department of Agriculture.	Beer-bohm.	Bulletin des Halles.	Hungarian ministry of agriculture.		Consumption.	Imports or exports.
Importing:							<i>Imports.</i>
United Kingdom.....	77	66	68	65	7	270	199
France.....	372	328	347	326 to 335	30.	355 to 369	14
Germany.....	121	104	108	111	9	170	57 to 62
Austria.....	49	42	44	42	3	91 to 96	48 to 57
Italy.....	133	120	128	118	0	148 to 153	37 to 40
Netherlands.....	4	5	6	5	0	23 to 26	14 to 16
Belgium.....	21	16	21	21	0	57 to 62	37 to 40
Denmark.....	4	4	4	4	0	9 to 10	3 to 6
Sweden and Norway.....	5	4	4 to 6	4	0	13	10
Spain.....	99	80	99	98	0	114	13 to 15
Portugal.....	8	4	7	4	0	13 to 14	9 to 10
Greece.....	4	6	5	3	0	9	6
Exporting:							<i>Exports.</i>
Russia.....	6499	340	355	369	10	298	71 to 85
Hungary.....	140	136	145	148	6	99	47 to 52
Romania.....	58	26	30	20	-----	18	6 to 9
Bulgaria.....	35	28	31	30 to 34	2	23 to 28	4 to 6
Servia.....	11	10	8	11	0	8 to 9	3
Turkey (Europe and Asia).....	65	84	72	91 to 96	0	88 to 93	3
India.....	248	232	237	232	0	204 to 213	16
United States.....	675	520	525	499 to 505	85	369 to 383	193 to 199
Canada.....	63	68	68	81	0	51 to 54	21 to 26
Argentina.....	50	72	71	74	0	26 to 28	51 to 57
Chile.....	14	16	16	17	0	11	6
Australasia.....	35	52	54	54	28 to 30	37 to 40	16
Algeria.....	22	12	18	9	-----	17 to 23	c 8 to 14
Tunisia.....	7	8	4	6	-----	7	c 1
Egypt.....	14	10	12	11	0	13 to 14	c 2 to 3
Omitted by Hungarian ministry:							
Switzerland, Persia, Cape Colony.....	27	28	27	-----	-----	-----	-----
Uruguay and Mexico.....	21	24	Omitted.	-----	-----	-----	-----
Japan, Cyprus.....	21	Omitted.	Omitted.	-----	-----	-----	-----
Grand total.....	2,907	2,445	2,516	2,453 to 2,477	180 to 182	2,541 to 2,624	d 158 to 496 e 442 to 478

a Sweden, Norway, and others.

b Including Trans-Caucasia and Central Asia. See discussion below.

c Deficit.

d Imports.

e Exports.

It may be doubted, for example, whether any of the figures for Russia, except those of the Department of Agriculture, include an estimate for Trans-Caucasia for which 40 million bushels were set down in the Department estimate for last year. The estimate of the *Bulletin des Halles* for Turkey covers Turkey in Europe, Asia Minor, and Syria. Both the other estimates for that country for 1899 are higher and may be supposed to include some portions of Asiatic Turkey omitted by the *Bulletin des Halles*.

But setting aside minor differences and taking the countries which are included in all four of the estimates,¹ we get for these countries the following totals:

	Millions of bushels.
Estimate Department of Agriculture, 1898.....	2,798
Estimate Beerbohm's Corn Trade List, 1899.....	2,393
Estimate Bulletin des Halles, 1899.....	2,489
Estimate Hungarian ministry, 1899.....	2,453 to 2,477

It will be noticed that Beerbohm's estimate seems considerably lower than either of the other estimates for 1899, but it must be remembered that the former is in bushels of 60 pounds, while the two latter are in Winchester bushels. It may be presumed that Beerbohm regarded the bushel of 60 pounds as substantially equivalent, on a general average, to the imperial bushel used in Great Britain, and 2,393 million imperial are equal to 2,468 million Winchester bushels.

The mean between the minimum and the maximum of the Hungarian figures is 2,465 million bushels. Hence the Beerbohm estimate, when reduced to Winchester bushels, instead of being lower than either of the others, falls between them, exceeding the mean of the Hungarian figures by 3 and falling short of the estimate of the *Bulletin des Halles* by 21 million bushels. The extreme difference between the totals for 1899 for the countries common to all four estimates—that between the figures of the *Bulletin des Halles* and the minimum figures of the Hungarian ministry—is 36 million bushels; but, if instead of the minimum, we take the mean between that and the maximum, making the Hungarian figures 2,465 millions, the difference is reduced to 24 million bushels, or less than 1 per cent.

If now we reverse the method pursued above, and to the total given in each estimate for 1899 add for the omitted countries a figure having the same ratio to the figure for the same countries for 1898 that the total for the included countries has to *their* total for that year, we shall have the following totals for all the countries included in the estimate of the Department of Agriculture, Trans-Caucasia being, however, still omitted in the case of Russia:

	Millions of bushels.
Estimate of Department of Agriculture, 1898	2, 867
Supplemented estimate of Beerbohm, 1899	2, 540
Supplemented estimate of Bulletin des Halles, 1899	2, 554
Supplemented estimate of Hungarian ministry, 1899	2, 526

The mean of the three estimates for 1899 is 2,540 million bushels, and the difference between this mean and the estimate for 1898 is 327 million bushels, a reduction of about one-eighth as compared with last year's crop.

The difference between the highest and the lowest of the above supplemented estimates is only 28 million bushels. The estimates for certain countries, however, differ quite widely.

It should be stated that the figures for countries in the Southern Hemisphere included in the estimate of the world's crop for 1898 are for the year 1897-98. Those for the same countries for 1899 are understood to be intended as forecasts for 1899-1900—that is, for the crop now growing and to be harvested within the next few months. For the Argentine Republic, Beerbohm has taken the figures for 1898-99 as a basis, but allowed for a reduction. The *Bulletin des Halles* has set down for the same country what it regards as a good average crop, the figures being 71 million bushels. The estimate of the Hungarian ministry of agriculture is 74 million bushels, which is substantially identical with Beerbohm's estimate of 72 millions, if allowance be made for the difference between the Winchester bushel and the bushel of 60 pounds. An official estimate has put the last crop—that of 1898-99—at 90 million bushels. Up to September 22 about 49 million bushels had been exported since January 1, 1899. Allowing 25 millions for home

¹ With the omission of Trans-Caucasia in the Department estimate for Russia.

² Omitting Trans-Caucasia.

³ Treated as Imperial and reduced to Winchester bushels.

⁴ Mean between minimum and maximum estimates plus figure for omitted countries.

consumption, including seed, there would remain, out of a crop of 90 million bushels, 16 million bushels available for export between September 22 and the close of the year. This would require about as high a rate of exportation for the last quarter of the year as that which has obtained for the preceding three quarters; and notwithstanding that exportation has been retarded by inadequate shipping facilities it is hardly likely that so much as 16 million bushels remains to be exported. On the whole, it seems likely that the Argentine crop of 1898-99, which is the one that should be compared with the crop of 1897-98, included in the estimate of the Département of Agriculture for the world's wheat crop of 1898, was at least several million bushels in excess of the highest estimate set down in the foregoing table for 1899, even though it may not have reached the high figure of 90 million bushels given in the official estimate of the Argentine Ministry of Agriculture. It should be stated in this connection that the official estimate for 1897-98 is, in round numbers, 44 million bushels. The crop of Uruguay for 1898-99 was 7 million bushels. For Chile no authentic figures are at hand.

The figures for Australasia are official for 1898 (Australasian crop year 1897-98). Those set down for 1899 are all below the official one for the crop year 1898-99, which slightly exceeds 56 million Winchester bushels.

As regards the crop of 1899 for countries in the Northern Hemisphere, there is little official information available for comparison with the estimates given in the table. The crop of Russia, which next to that of the United States is the largest in the world, is undoubtedly much smaller than that of last year if the official figures as to the latter be accepted. Preliminary official figures for 1899, as announced by telegraph, make the crop 661 million poods, or 398 million bushels of 60 pounds. This figure exceeds the highest one given in the table—that of the Hungarian Ministry of Agriculture—by 29 million bushels and falls only 61 million bushels below the crop of 1898, if we omit from the figure for that year the 40 million bushels unofficially credited to Trans-Caucasia, a part of the empire for which it may be presumed no estimate is included in the official figures for 1899 as just given, since none has been included in any of the official statements for previous years.

It has already been intimated as probable that no estimate for the crop of Trans-Caucasia is included in any of the figures given for Russia for 1899, whereas one of 40 million bushels is included in the figures of the Department of Agriculture for 1898. The latter also includes the official figures (15 million bushels) for the Region of the Steppes in central Asia, for which no estimate is included for this year by Beerbohm, though one is probably included by the other two authorities. Assuming that to be the case, the figures of these two authorities would only become comparable with those of the Department of Agriculture for 1898 after deducting from the latter the 40 million bushels allowed for Trans-Caucasia. This would leave 459 million bushels, than which the estimates of the *Bulletin des Halles* and the Hungarian ministry of agriculture for 1899 are smaller by 104 and 90 million bushels, respectively.

If the figures for the Steppes (Central Asia), as well as those for Trans-Caucasia, be deducted from the estimate of the Department of Agriculture for 1898, the remainder is 444 million bushels—a figure comparable with Beerbohm's figures for 1899, since it represents the same parts of the Empire. It may therefore be said that Beerbohm's estimate makes the Russian crop of 1899 in these parts of the Empire—

namely, European Russia¹ and Siberia—smaller than that of 1898 by 104 million bushels, the difference being exactly the same as that found for a somewhat larger territory in our comparison with the estimate of the *Bulletin des Halles*.

In these comparisons for Russia no account has been taken of the difference between the Winchester bushel and the bushel of 60 pounds. The effect of such an allowance would be to increase the differences found in comparing the figures of the Department of Agriculture, which for Russia are in bushels of 60 pounds, with those of the *Bulletin des Halles* and the Hungarian ministry of agriculture. It is, however, quite widely believed that the Russian official figures for 1898 were in excess of the actual crop; and if that be the case, the reduction, as compared with last year, will, to the extent of such excess, appear larger than it really is. It may be noted here that *Broomhall's Corn Trade News* in a recent issue expresses the opinion, based upon "the evidence of private and official reports," that in districts whose average crops amount to 160 million bushels "this year's yield will prove fully 50 per cent short." This would give a crop of not more than 80 million bushels instead of 160 millions in those districts, and, assuming the crop to be an average one in other parts of Russia, the crop of the Empire as a whole would be at least 80 million bushels below average.

Next in importance to the wheat crop of Russia is that of France, and it will be noted that of the figures for that country those of the *Bulletin des Halles* are considerably the largest. They are, in fact, within about 25 million bushels of being equal to the preliminary official figures for 1898 and within about 3,300,000 bushels of the *Bulletin's* own estimate for that year. Reports as to the character of the crop, particularly those from the heavy wheat-growing districts of northern France, had led to quite a general belief that the yield, while up to or above the average, would fall considerably further below that of 1898 than the *Bulletin's* figures indicate; but it is only fair to say that these figures purport to be based upon thousands of returns made in response to inquiries which this journal, in accordance with its custom for many years past, addressed to agriculturists, millers, grain dealers, and others who are in a position to judge intelligently as to the character of the crop in their respective spheres of observation.

It may be added that the estimate of the *Bulletin* is considerably below the preliminary official figure, which puts the crop at 129,005,590 hectoliters, or 366,078,907 bushels. This is within less than 6 million bushels of the preliminary official figure for last year's crop, as given in the table, and is actually in excess of the revised estimate, which makes the crop of 1898 128,096,149 hectoliters (363,498,442 bushels), or over 8 million bushels less than it was made in the preliminary figures. The *Marché Français* and the National Millers' Association of France have given out still higher estimates, but it will certainly be a surprise to many if, after all the reports of damage to the wheat crop in some of the most important wheat-growing districts, the crop of 1899 shall turn out to be as large as the unusually fine one of 1898. It may, however, be fairly said that in comparison with the other estimates just mentioned the figures of the *Bulletin des Halles* appear moderate.

The Beerbohm figure for India is the preliminary official one, to which some 2,000,000 bushels will probably be added.

In regard to Hungary, the figures of the Hungarian ministry of agriculture, which are materially higher than those of Beerbohm and 3

¹ Including Poland and northern Caucasus.

million bushels above those of the *Bulletin des Halles*, may be taken as official, though doubtless subject to revision.

In regard to Austria, there is a difference of only 2 million bushels between the maximum and minimum estimates.

Of the figures for Roumania, those of Beerbohm coincide with the official estimate for that country. The *Bulletin des Halles* adopts a higher figure, and had elsewhere expressed the opinion that the official estimate is too low, although it exceeds that of the Hungarian ministry of agriculture by 6 million bushels.

All three figures for Italy are below the latest official estimate, which puts the crop at 48,600,000 hectoliters, or, in round numbers, 138 million bushels.

Of the three estimates for Spain, those of the *Bulletin des Halles* and the Hungarian ministry of agriculture are both more optimistic than the reports which have been current in regard to the character of the crop would seem to warrant.

The estimates of Beerbohm for the United Kingdom and Germany, if reduced to Winchester bushels, would nearly coincide with those of the *Bulletin des Halles*, both exceeding the Hungarian estimate in the first case and falling below it in the second. No official figures on production have been issued for either of these countries, but the British figures on area make the breadth of land under wheat in the entire Kingdom 2,052,840 acres, against 2,155,004 acres last year, a reduction of 102,164 acres. The average yield last year was about $34\frac{3}{4}$ imperial or $35\frac{1}{5}$ Winchester bushels per acre. Some estimates make the yield this year as high as 32 imperial (about 33 Winchester) bushels, which, on the acreage named, would give a total production of nearly 68 million Winchester bushels, the figure of the *Bulletin des Halles* in the foregoing table.

Of the three estimates for Canada, that of the Hungarian ministry of agriculture (81 million bushels) is much higher than is warranted by the information at hand, particularly the official figures for Ontario and Manitoba, the chief wheat growing provinces. Even the estimate of 68 million bushels is probably somewhat too high.

It will be noticed that the estimate of the Hungarian ministry of agriculture for the United States is considerably below either of the others, the mean between the minimum and maximum of the Hungarian figures for this country being 502 million bushels, while Beerbohm's figure is 520 million bushels of 60 pounds, and that of the *Bulletin des Halles* 525 million Winchester bushels—the latter figure being one which has been exceeded by few of the unofficial figures thus far given out. As regards the official figures, these will not be ready for issue for some time to come.

The difference between the Hungarian estimate and the other two in respect to the crop of the United States is partly offset in the grand total by differences in the opposite direction for a number of countries, chiefly of minor importance, not mentioned in this discussion, the most important being Turkey, for which the Hungarian estimate is 91 to 96 million bushels, against 84 and 72 millions estimated by Beerbohm and the *Bulletin des Halles*, respectively.

Comparing the estimates for 1899 with those of the same authorities for 1898, the reductions in the world's wheat crop appear to be as below:

	Millions of bushels.
According to Beerbohm	377
According to <i>Bulletin des Halles</i>	291
According to the Hungarian ministry	312

It has already been seen that supplementing the estimates for 1899 by additions for omitted countries which are included in the estimate of the Department of Agriculture for 1898, and then comparing the latter with the mean of the three estimates as so modified, we get 327 million bushels as the quantity by which this year's wheat crop falls below that of last year. The minimum reduction, that of the *Bulletin des Halles*, is 291 million, and the maximum, that of Beerbohm, 377 million bushels; the mean of all four being 327 million bushels. On the whole, a reduction of more than 300 million bushels is pretty safely inferable, and it would seem that during the current crop year the farmer should obtain satisfactory prices for his wheat.

The Hungarian estimate, as shown by the table, covers not only the crop, but stocks, consumption, imports, and exports. Taking both the imports and the exports at the minimum estimates given and treating the three deficits as imports, the latter exceed the former by 16 million bushels. Taking both at the maximum, the excess of imports would be two million bushels more. On the other hand, if maxima be compared with minima, the imports would in one case exceed the exports by 54 million, and in the other the exports would exceed the imports by 20 million bushels. That is, there is possible, within the range of the Hungarian estimate, a surplus of exports over imports reaching at the utmost 20 million bushels, whereas the excess of imports over exports may run as high as 54 millions. From this it would seem that, in the opinion of the Hungarian ministry of agriculture, a depletion of stocks is much more probable than their increase. The figures are, however, not entirely congruous, as the estimated consumption in the case of Spain exceeds the sum of the crop and the imports, notwithstanding that the stock is set down as zero; while the exports estimated for Roumania and Argentina are larger than the excess of their estimated supplies over their estimated consumption.

The *Bulletin des Halles* makes the needed imports exceed the exports by somewhat over 7 million bushels, implying a reduction of stocks to that extent.

OTHER GRAIN CROPS.

The estimates of the Hungarian ministry of agriculture for the other grain crops are given below by grand totals for the world. Details for countries are not at hand, but it may be taken for granted that the list of countries to which the estimates apply is not more full than in the case of wheat, if as much so.

Rye.—Total production from 454,690,000 to 455,500,000 hectoliters (1,290,300,000 to 1,292,600,000 bushels). Stocks, 8,700,000 hectoliters (24,700,000 bushels). Consumption, 469,450,000 to 484,650,000 hectoliters (1,332,200,000 to 1,375,300,000 bushels). Deficit, 16,300,000 to 18,200,000 hectoliters (46,300,000 to 51,600,000 bushels).

Barley.—Total production, 310,790,000 to 314,990,000 hectoliters (881,900,000 to 893,900,000 bushels), not supplemented by stocks. Consumption, 338,500,000 to 361,900,000 hectoliters (960,600,000 to 1,027,000,000 bushels). Deficit, 33,300,000 hectoliters (94,500,000 bushels).

Oats.—Total production, 899,350,000 to 918,850,000 hectoliters (2,552,100,000 to 2,607,500,000 bushels). Stocks, 20,000,000 hectoliters (56,800,000 bushels). Consumption, 925,250,000 to 963,750,000 hectoliters (2,625,600,000 to 2,734,900,000 bushels). Deficit, 13,300,000 to 15,400,000 hectoliters (37,700,000 to 43,700,000 bushels).

Maize.—Total production, 956,950,000 to 977,950,000 hectoliters (2,715,600,000 to 2,775,200,000 bushels). Stocks, 24,500,000 hectoliters (69,500,000 bushels). Consumption, 931,300,000 to 977,700,000 hectoliters (2,642,800,000 to 2,774,500,000 bushels). Surplus, 20,800,000 hectoliters (59,000,000 bushels).

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Approved:

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